No. 5.

Field Book
of
Willis Linn Jepson.

Expedition to Mt. Whitney.

Three Rivers

Our mule-train, bound for Mt. Whitney left Britten's Store, Three Rivers at 8:45 A.M. August 1, 1900, Mr. Hopping and I riding mules and with two pack animals, Blossom and Hot Haste. I have my doubts about Hot Haste standing the trip but he starts off well.

The Mt. Whitney Power House is an interesting station. Here the Kaweah River or rather a portion of it is harnessed and put to work for the benefit of the Valley people 35 miles away.

Mt. Whitney Power House

The terminus of the flume is on the mountain side 1000 or 1200 feet I should judge above the electric plant which is near the Kawrah River. The fall of the water is great therefore and its force corresponding. The stream from a nozel rushes out terrifically; will knock a barrel into kindling wood instantly. Sufficient power to bore a hole through a man. If one take an axe and strike the stream (near the nozzle) it is like striking a piece of bar iron and

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the axe is knocked instantly out of one's hands.

The Douglas Oak is the feature of these hills as we travel along the road. This zone terminates a short distance this side of the "river bridge"- (S. Fork Kawrah).

The Douglas Oak is called Jack Oak in this region. The woodsmen find two kinds of heart wood, brown and black. The black is very hard and will turn the edge of the finest steel axe.

Mt. Whitney Power House

The "mast" of the Douglas Oak is in some years so heavy as to break down the limbs of the trees beneath the weight. The raising of hogs is largely dependent upon the acorn crop. In this connection see Clarence King's Mountaineering in the Sierras - "The Newlys of Pike"

The acorn crop may fail for three reasons:

1. Frost
2. Dry year
3. The third reason I did not fully understand and do not now re-

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call. I must ask Mr. Hopping again concerning this.

At Cold Spring, 3260 ft. alt. the Mountain Live Oak, Quercus chrysolepis comes in.

Perfume of the crushed flowers of the Sweet-scented Shrub*. Used by some people in this region for a perfume, crushed flower tied in a knot in the handkerchief or similarly to ordinary perfumes - in a dressing drawer.

* Calycanthus

Cold Spring

(East Fork of Kawzah River)

Clematis lasiantha - heads of fruit noticed one evening near Lake Cañon - looked in the dusk like a plant in flower - trailing over the top ~~summit~~ of the brush. Called "Pipe Stem". Pith can be run right out and the ~~stem~~ adjusted to the bowl of a pipe.

Mules and the back trail. Our mules hit the back trail with the utmost pertinacity. They will not leave a mare, so it is a good plan to

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have a mare in the train, and stake or hobble the mare.

— Asclepias vestita (= A. eriocarpa Benth. See no. 563.) is common along the Kawzah River from Lemon Cove to Three Rivers and doubtless higher up. On account of the exceeding fineness of its silky cymes which are like satin or floss, the tufts are used as a filling for scent-bags. It is much more desirable than cotton.

Mr. Hopping related to me an incident concerning a mother quail and a dog.

Cain's Flat.
(East Fork Kaweah)

In order to protect the helpless little ones in her nest she fluttered away from the nest and succeeded in leading the dog away by pretending to be wounded and fluttering along helplessly at intervals. By this ruse the dog did not discover the nest of small quails.

Mr. Hopping says that tourists sometimes ask him why there are no fir-cones beneath a fir tree. They do not know,

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many of them, that a fir-cone remains whole only on the tree and that when it begins to leave the tree it goes to pieces.

Lunched at Cain's Flat at 12:30. Broke camp at 1:51

Torreya, several trees, very full of fruit at Redwood Canon (5450 ft-alt.) - "What very prickly leaves it has!" - H.

Pure Lupines, fed on by cattle a great deal (Lupinus albicaulis var.).

Fremontia fruits - like Hazel nuts - pointed.

Davenports
(East Fork Kaweah)

Arrived here at 6:30. A pleasant place to camp. It is a sort of deserted clearing, with quite a picturesque built small granary in the middle of it, situated on a small ridge running out towards the river from the road. We are now on the south side of the river and we have a view of the peaks of the Sawtooth Range. Our camp was beneath a cluster

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of young sugar pines.

— Mr. Hopping has had the good luck to see a California Lion or Panther running down a deer, the Lion running along with a steady cat stride and the deer nearly winded with his tongue hanging out. spectacle; a great

— Pine Tar Weed — Mr. Hopping's name for Mountain Misery.

— Wild Plum at Redwood Cañon - from Mr. H's description undoubtedly Prunus subcordata.

Davenport's to

Got away at 7:20. Early this morning I noticed Sierra lined up on the road 200 yards out waiting for Hot Haste to join her on the back trail. He, however, was securely tethered.

What is "Gold-Wire"? From Mr. Hopping's description it is probably Hypericum concinnum.

Mr. Hopping tells me about an isolated group of Big Tree redwoods, consisting of 200 or 300 very fine trees, which is to be found at the head of

Farewell Gap, Aug. 2.

Coffee-pot Cañon which is across the Kaweah River from (and opposite to) Point Lookout. There are also Sequoias visible across the cañon from Atwell's Mill to Weisha's Mill and above nearly to Mineral King. One can detect these trees on the south side of the cañon, - standing or riding on the road on the north side - not merely because of their height but by reason of their rounded tops.

- Quercus Breweri, occurs from Slapjack (4900 ft. alt.) to Davenport's (6150 ft. alt.).

Farewell Gap.

The round-topped Sequoias lend a charming diversity to the ridges between Redwood Cañon and Wrights Mill. The pines and firs are so symmetrical and so uniform in their tops that it is pleasing to see the round tops of the Sequoias rising out of the monotony around them.

The effect is in one way peculiar to the mind in that the reverse association as to height usually holds. In the Seaward or Middle North

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Coast Ranges the round tops are those of the oaks or madrona, and the spiny tops of Redwood, Douglas Spruce or Pine rise above them always.

We lunched at 11:30 at a little stream, 3/4 of a mile below the summit.

The alpine streamlets are beautiful with the Alpine Mimulus (No.) that grows in their beds. The water rushing over the gravelly or rocky bed, the cushiony mats of the leaves, the very large flowers stalked

Farewell Gap.

on the cushions, made a very striking picture. Photo. taken.

Mr. Hopping tells me that Quercus chrysolepis is the best wood for wagon tongues, axle-trees and for all purposes where great strength is required. Almost impossible to split the wood and it will stand any strain.

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Mr. Hopping says there are no Big Tree redwoods anywhere in the Kern River basin. The Tule River comes between the Kaweah and the Kern.

The perennial Gentian that I collected in Farewell Gap has 5 & 6-merous flowers. The annual Gentian is always 4-merous. (cf. F. B. 4:175.)

Localities for Yellow Columbine:

Farewell Gap.
Near the Kettle (Mt. Silliman to Bubbs Creek. Williamson Mdws.
Edge of Granite Basin between South Fork and Middle Fork Kings.

Farewell Gap.

I ride Sierra and bring up the rear of the mule-train. This is so that I may stop any time for plants and not stop the train on the trail. Blossom, this pack mule is usually just ahead of me in the train. She has very marked stripes on her hind legs and also a pronounced stripe on her back running into her tail.

– Mariposa Lilies called Butterfly Poppies in the Kaweah region. (Calochortus)

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– We have met few soldiers this trip but I still smile at my experience with Britten, the Ranger, at the Old Colony Mill.

– Mr. Hopping says the small-flowered Nemophila of the foothills at Redstone Park (presumably N. parviflora) has blue flowers. = N. pulchella Eastw.

– Lupinus micranthus – Mr. H. says he has cut this for hay in the Kaweah North Fork country. The seeds are eaten by doves; in one of his fields great flocks of doves come to feed. = Lupinus bicolor

See p. 169 seq.

Shot-gun Creek.

Arrived last night at Shotgun Creek at 4:45. visited the Soda Springs the evening before, in the Little Kern. The springs had built up curious mounds 10 or 15 ft. h and their died, apparently choked. One spring sounded as if it were boiling but it gave out no steam or water.

Same as no. 959. Ivesia of the dry swales; numerous leaflets, spreading cuneate white petals, foliage matting the ground loosely— stamens 20; common in Pine forests.

August 3, 1900.

Between Shotgun and the Stream where we noonedstretched a pine forest of Pinus Jeffreyi. In some places there was a noticeable number of dead and dying trees. About Lion and Tamarack meadows there were a few tamaracks and firs. Between Burnt Corral Meadow and Trout Mdw. we saw at intervals of a mile or so. 1 or 2 individuals of Quercus Calif. Near Burnt Corral Mdw. there were about 8 or 12 individuals of Argemone mexicana, the only locality known to Mr. Hoopping.

Burnt Corral Meadow 4

The seeds may have been brought in from the desert side by the sheep industry. I notice a large number of Pinus Jeffreyi trees in which the main trunk high up is branched into two branches. Sometimes there are three.

Mr. Hopping related to me his experiences tracking lost horses and deer. It requires a long-trained eye, with a head and heart close to nature. On the Giant Forest he had to track his errant animals over rock ridges where no

Lion Meadow, Aug. 3.

sign is left; even as bad, the Tamarack (Chamaebatia) leaves no track.

Pinus Jeffreyi has three needles or sometimes two on the beginning of the year's growth. A small tree but 7½ ft. high bore near the summit a single perfect cone.

Mr. Hopping is very averse to sheep on the reservations or in the parks. He says cattle on the contrary are not to be dreaded. For me they help prevent or aid control of fires by wearing heavy trails. Harvey, the ranger who gaurds the country from Mt. Whitney to Monache and from Lone

Burnt Corral Meadow +

Pine to the Kern River Cañon, favors sheep if only the sheepmen be held responsible for setting out fires and the bands be forced to move from meadow to meadow before it is fed down too much.

Fuller's Forestry gives Key to all the forest trees in the United States.

Rose of Old Colony Mill= "Pine Brier Rose" - my name.

- Asclepias (Gymnocarpus) ~~fusiformis~~ cordifolia - near Burnt Corral Meadow. Suggests common name = Hill Milk-

Lion Meadow, Aug. 3.

weed or Purple Milkweed. Both flowers and pods are purple so that doubtless the latter is the better name.

Desert-like areas in the High Sierras about Mt. Whitney: Milkey Meadows; Siberian Outpost; and region to north of Crabtree.

The small Calochortus of the venustus type we find again in the Burnt Corral country.
- C. nuttallii T & G = C. leichtlinii Hook.

We have many species of Dodecatheon that are quite unlike in aspect and color of flowers. It is suggested to

Burnt Corral and

me on seeing great patches of D. Jeffreyi in Farewell Gap that there ought to be common specific names. There are too many common generic names in use. Mr. H. says Dodecatheon Jeffreyi is called "Darts" here in this region. They are so large that the name is very apt. Shooting Star had best go to D. patulum and Mosquito Bills or Sailors Caps to D. Hendersoni. Maybe the latter is taken from some European plant, so it would be well to investigate.

Lin Meadow. Aug. 3.

The wisdom of the ancient mule Hot Haste furnishes us unending amusement. He is the leader of our little botanical mule train and when he sees a "camp" he turns in invariably for he can always spot a place instantly where parties have stopped even though there be nothing more than a few burnt sticks. Then again he will leave the trail and when headed off will give his head a protesting shake and turn back. Sometimes we attempt to drive him back to the point where he left the trail but he will elude us and make a short cut for the trail and start along

Ancient Bed of the

it when he comes to it- or "hits it", never crossing it. This is significant when one remembers that a trail is rarely visible when one gets a short distance away from it unless it be straight up a steep hillside. But it is at saddling up time that Hot Hash shows best his greatest wisdom. When being cinched he wastes no energy biting or grunting or kicking in general horse play - but like Brer Rabbit he simply lays low - and swells.

Pinus Jeffreyi trunks match in their trunks, bissuring, etc. largely the

Kern, Aug. 4, 1900.

Yellow Pine; there are few that have distinctive trunks. The wine color is very distinctive. The young trees look exactly like Yellow Pines.

Camped in the old bed of the Kern last night at 5:00 P.M., at upper end of a meadow. Always camp at the upper end of a meadow because the water is better, is colder and runs through less of decaying vegetation.

As to Jeffreyi and Ponderosa we fancied we found a distinction in the cones - the prickles of Jeffreyi being incurved, but soon we found some that had outcurved prickles. The size of the cones

Ancient Bed of the

seems to be the only differ-
ence and I judge this
character to be insufficient.

Sugar Pine, the sugar
(not the gum-pitch) very
good eating acc. H. but very
laxative. Has a decided lemon
taste.

As I galloped across the
meadow above Front Mdw.
last night Mr. H. watched
me and asked as I came
up: Did you ever ride before
this trip? Yes, said I.
"I thought so"; he said; "I was
watching you as you came
up and the close way in

Kern, Aug. 4, 1900.

which you sat your saddle and
the manner of holding the
reins spoke experience. No
greenhorn does that!"

Met a party of old mount-
aineers yesterday that had
been burnt out - whole camp
burnt - lost everything but
canned goods. Bedding, saddles,
bridles, stake ropes, lash ropes, canvas covers,
& etc - all burnt. One would
think a saddle would not
burn but it will burn
readily. Caught from their
camp fire. Not necessarily
due to carelessness. Spark
might have blown into their
bedding and smoldered a
long time. We met the
party on the trail, riding
bareback with baling-rope bridles.

Ancient Bed of the

Said me man who had lost a $35:00 range saddle: "Jis got the rings that was in my saddle – (and he laughed) – meest lot of rings you ever saw. You'd never think there's so many rings in a saddle. About 16"! (And he haw-hawed) I'll have those to play with now."

Ceanothus pinetorum (Gov.) is abundant ~~from~~ just below Coyote Pass and common from Short gun to Lion and Burnt Corral Meadows.

Kern. Aug. 4, 1900.

Let me again sing the praises of Hat Harte. He is a mighty knowing old mule. He makes a good lead mule for our little train. But if we stop he does not go far before he discovers it and then he will turn and look back. If he can't see the train he starts back and when he meets us he stops and points his ears at us as if to say: Why I didn't expect to meet anyone here!

Lunched at Lower Funston Meadow where we arrived at 12:10. Called on Mrs. Harvey on the way up at the Soda

Kern Canon.

Spring (Fenced Meadow). Saw Mr. Heinmann, the ranger also. He has the most extensive range of any of the rangers- from the Kern River Canon to the Marble Fork - and Mt. Kaweah to the southward. After lunch, on saddling up, Mr. Black, a typical Englishman of the Lindsay Colony, came into camp with another gentleman. His speech showed him to be English surely. He fishes a great deal, spends the entire summer in the valley of the Kern Canon until he gets word that it is cool in the valley. He never eats a fish of his

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catch - always puts them back. Surely a true sportsman! Sport for sports sake. When opportunity offers he may send a string to his friends in the valley (of the San Joaquin).

Datisca glomerata. near Kern Lake.

Left camp at 3:00. After two miles traveling we ran across a couple of young bear. They ran up a Jeffrey Pine - high up amongst the branches. My Winchester repeating shot gun was in the pack on Hat-Haste. I hurriedly unpacked, got out buckshot cartridges and

Kern Canon,

shot first at the smaller black bear. Shot him first in the head, then beneath towards the fore legs. At the second shot he dropped 40 ft. to the ground. The larger brown one I shot first in the head. The shot practically killed him but he was so wedged in the branches that he did not fall. I fired 3 charges of 6 shot but it had no effect. Then Mr Hopping tried to go up the tree but it was too large. So I took some small rope and after repeated efforts threw the string on the end of it over a live limb, the lowest one, 35 ft. h. Then

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the two over-reach ropes were drawn over - 66 or 70 ft. in all. I held the ropes taut and Mr. Hopping went up - and the dead limbs came down as he progressed. Above the first live limb he left the ropes and made rapid progress. The brown bruin dropped 60 ft. We bagged them and put them on Hot Haste and hastened on to Upper Funston Mdw. where we made camp at 5:55, having lost 1 hr. on the way.

Stephanomeria, no. of Kern River, "resembles it" - flowers close in afternoon; also the Nicotiana no. . Old Kern Bed, Camp Mdw.

Kern Canon

That which is here called "Old Kern Bed" is high above the present Kern River and separated by a high mountain ridge, but this valley of Front Meadow runs into the Kern Canon just below Kern Lake and again Southward.

Fred Harvey, the ranger, killed two bear a few days since in a meadow south of Cottonwood, where there was a carcass of a cow and both bear came to eat. The second bear laid himself down flat and began to chew away but it didnt please him and he gave the carcass just one blow with his paw and turned it over! Mr. H. says the

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Brown Bear which I killed could have stunned me with one blow of his paws. Bear about Redstone carry off hogs.

Sunday.

Left Funston's Upper Meadow at 8:45. The very pilose-wooly Hieracium is in Kern River above Chagoopath Falls - yellow flr.

Upper Kern Lake is a lake of recent formation. When I saw the tree stumps standing everywhere in the water I supposed it to be artificial. Caused they say by an earthquake in 1857 - 1858 winter. There were

Gentian Mdw.

Parties in here who counted the earthquake shocks - 82 in all. There were also men on the Kern in the summer of 1867 who declare that there was no lake there then. The canon is so narrow that the displacement of rock from its walls might easily form a lake.

Camped at Gentian Mdw. at 12:00. Broke camp at 1:55. Camped at Junction Mdw. for the night at 3:00, - passing Whitney (Crabtree Creek?).

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Gentians at Gentian Mdw:
Annual 4-merous Gentian - G. holopetala Gray; tube veined, flowers light blue; no appendages; no fringes; flowers solitary at summit of scape. like which bears 2 or 3 prs. of leaves at base. No. 1049.

Gentiana amarella acuta, No. 1048. - coll. at Gentian Mdw.

Saw a genuine arctic pool at Gentian Mdw. Sides abrupt and water deep. Absolutely clear - remarkable! Bottom colored with red, brown, & green algae; also tufts of algae growing from

Kern Canon

bottom clear to top - nothing but algae. Pool 30 ft. long, 12 or 15 ft. wide.

Old Hat Haste has a habit of veering to the right on a trail; if a trail passes to the left of a tree he will often pass to the right. He rarely bumps a tree, even when going between two trees where there is just room, and will swing at just in time to save his pack when you fancy he is going to bump! He is a most knowing old mule. Perhaps that is the reason why Sierra will

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not allow him to get out of her sight if she can help it.

To night the four mules hit the back trail just before dusk and Mr. Hopping succeeded in overtaking them only at Whitney Creek. Three were hobbled, Sierra leading, Blossom not hobbled feeding along after her usual fashion. This morning Hat-Haste was lame and investigation showed that he had lost a shoe. He had wedged his foot in somewhere between the rocks, doubtless, and being hobbled the shoe was strained off.

Junction Mdw.

Left Junction Mdw. and started for Crabtree Meadows at 7:07 o'clock. Above Junction Camp on the heights of the cliffs of the east wall of the Kern Canon is a forest of Fox-tail Pine with the dead light-red masts and branches shining among the green. Perhaps there is albicaulis with it (No! later note).

The trees here are Silver Fir, Tamarack and Jeffrey Pine.

This morning was very cold, the coldest I have experienced this Summer. There was

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white frost all over our bed-clothes. In the middle of our breakfast we were treated to quite a sensation. An elegant 4-point buck started across the river, not seeing us, and would have landed right in our camp but hearing Mr. Hopkins's exclamation: "See there Doctor", he stopped and, after an instant's hesitation following a startled jump in the water, made for the opposite bank in four or five great leaps. He was stepping high in the water when he saw us for the water was ice-cold, but

Junction Camp

his daintiness disappeared in an instant when he saw us - and away he went down the other bank. He was a fine specimen. It would have been a pity to kill him! Anyway my gun was down. Mr. Hopkins says their eyesight is very defective

About Junction camp are a good many young tamaracks with great patches of bark gone. These patches are fairly regular, roundish or rectangular or sometimes

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narrowly oblong. Often, three patches on various sides of the tree and at different heights run together and the tree is girdled. Mr. H. says old miners assure him that it is the work of porcupines. These porcupines have quills about 10 or 12 in. long and are about the size of a rabbit. The patches extend from near the base of the trunk nearly to the top; I notice none on the limbs.

We went up the Kern basin about 2½ miles, then turned up the east basin wall and worked

Junction Camp to

back and forth towards the top but always veering toward the East Fork of the Kern. We went down into the little cañon of the East Fork - pretty wild up from the cañon walls of the main river - and worked over into a branch of the East Fork (marked on Le Conte's Map. Here we lunched at 12:20. We saddled up at 12:55 and started to work across the great rock flow which is not very wide but which very effectually bars progress here. We could have gotten around

Crabtree Mdw. Aug. 6

it by trailing low down but we chose to work through it upwards. The worst part at the point we got through we mon-umented. I discovered this because a thin line of Foxtails connected the grove of trees on either side of the flow. Arrived at Crabtree Mdw. at 3:30; at Foxtail Mdw. at 4:45 where we unsaddled and staked all the animals except Hot Hash.

Mr. H. tells me that a mule colt will follow its mare mother longer than a horse (or non-hybrid) colt. This is interesting.

Foxtail Camp.

How delightful is the music of the river*; we are encamped on its bank and its loud song is never tiresome.

The clear intense blue of the sky at this altitude is noteworthy. On this account the peaks stand out very sharply.

At Foxtail Camp there are but two trees - pines: Foxtail + Tamarack. The Tamarack exceeds as high as the Foxtail apparently for this is very near the Timber line.

* This must have referred to Crabtree Creek why did I say "river"?

Langley Camp. Aug. 7.

Got up at 5:00 or before and prepared to start for Langley Camp and Mt. Whitney. It was exceedingly cold but we had a hot fire of Tamarack stumps and branches. After a hearty breakfast we saddled Blossom and Sierra and rode up to Langley Meadow. The meadow is shewn with the timbers and framework of the meridian base lines made by the U.S. Astronomical Expedition. Here we tied our animals and began the up trail. We immediately found numerous alpine plants, including Salix arctica, a

Mt. Whitney

dwarf Gentian, no. 1070 and Potentilla, etc. Bryanthus Brewri, Pentstemon confertum (with leaves closely matting the ground) and one wheel of flowers; Mimulus primuloides; Further along I found Primula suffruticosa in what is called the "pass" on the trail to the summit, Epilobium obcordatum (Alpine Willow Herb), an Antennaria, Polemonium confertum, Sedum Rhodiola,

Above the "pass" I collected Eriogonum, no. 1073 which was the third highest plant; Polemonium confertum being the second

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highest; and Hulsea algida, no. 1067, which was quite common and ranged the highest of any flowering plant being found only about 200 feet below the summit.

The westerly face of Whitney is crowded with slender pinnacles which cast shadows in the afternoon against the steep mountain wall. Everywhere there is the white granite rock, either huge bowlders and blocks piled high or to a small extent on the less steep slopes a little granite sand. Our view from

Mt. Whitney.

The summit was very satisfactory. It was a clear day and the mountain ranges stood out well, The Kaweah group, the Saw-tooth Range, the Mt. Brewer group, and the confused mass of peaks toward the north. South, Olancha Peak (Monache of Lecontes Map) was very prominent and also a high peak to the very south. On the summit of Whitney at the monument I met a man (see p. 62) from the desert side who knew things, who had traveled everywhere

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through the mountains eastward and who pointed out to us the prominent ranges. One can see south-eastward the Panamint Range, crowned by the lofty Telescope Peak. I noted this mountain while at Independence. Just over the Panamint Range lies Death Valley. In Inyo Co is the lowest and at the same time the highest point in the U.S. We look down 11,000 feet and over on to Lone Pine in Owens Valley. The Grapevine Range beyond Death Valley was visible. Also the

Mt. Whitney.

White Mountain Range which is the northerly prolongation of the Inyo Range.

We left Foxtail Camp at 6:40 and Langley at 7:55. From Langley we reached the top in 2 hrs. and 45. min, i.e. at 10:40. Started down at 12:10. Got on our mules at 2:20. Reached Foxtail Camp at 3:10.

The name of the man from the desert side is Geo. W. Whittock, Olancha, Inyo Co., Calif. I photographed his party in

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the "pass" as he seemed so pleased to have the promise of a picture on Whitney.

The Tamarack is very pitchy. The Juniper wood is also often exceedingly heavy with pitch. The Tamarack is everywhere - everywhere that you get high enough.

The deer that we saw at Junction Camp was in the full velvet. There is often discussion as to when this occurs on a male.

The bears killed were brown and cinnamon - both

Mt. Whitney.

males; and both from the same dam or they would not have been running together. Old hunters say the cinnamons are males.

Aug. 8.

Saddled and off at 7:00. We found a clear trail down Whitney (Crabtree Creek) for a long distance. We only met difficulty at a place where we were forced to cross the stream, the opposite side of the canon showing fair going. We had to build a trail through the lower part of a rock floe to the stream

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and the crossing was very bad. Then we worked along a steep hillside and down into the creek again - crossing it. Here a great rock floe barred progress and we nooned for about 1 hr (Hot Haste Camp - tin put on Fir tree.). Then we determined, rather than go back, to work our way along the top of the talus 200 or 300 ft. above at the base of the walls. We built 1/4 mile of trail before we succeeded in getting beyond the cliffs and out on to a sloping hill leading down to the Kern Bed. From the first

Whitney Creek,

mt. Whitney.

crossing of the stream to the second we made our way above and around the rocky slit in the cliffs through which the Whitney cuts. This is in line with the high main cliffs of the Kern Canon wall.

All the way down the gorge we met Foxtail and Tamarack and low down Red fir. There was a single low tree of Acer glabrum at Hot Haste camp, its trunk and branches exceedingly white, its leaves edged already with the crimson of autumn.

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- Parnassia, no. 1098. near Hot Haste Camp, Whitney Creek gorge. Stamens 5, filaments unequal. Staminodia cleft into 11 to 14 filaments with small anthers, and a fewer number of short filaments with abortive anthers. Flowers white, veined. See p. 110.

Pinus monticola in the Whitney gorge!

At 3:55 we got through the gorge on to the Kern Flat ↑ bajon by working down the lower less steep canon side of the main river.

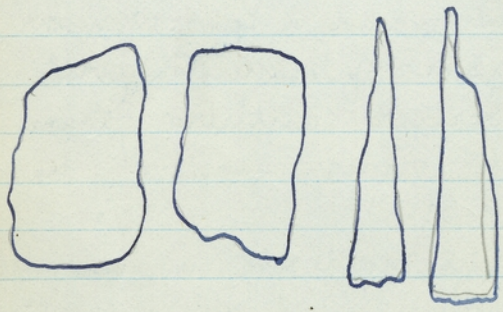
On Whitney the highest trees Foxtail & Tamarack about equally divide honors.

Gentian Mdw.

E. fork Kern Cañon floor.

Reached Gentian Mdw. at 4:27 last night

Porcupine marks on Tamaracks:



Packed and off for the Big Arroyo at 7:20. Noonned at Funston Creek at 12:10. Saddled up at 1:55. Arrived at Big Arroyo at 3:45.

Went down the Kern Cañon mostly over the talus. The

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sun had not risen. Rises for good in most places about 5.00 or 9:00. Sets at Gentian Camp at 3:30. It sounds well to say we started before sunrise! When the sun came over the cañon wall, the branches of the great trees on the edge of the plateau, through the blaze of the orb of day shone clear white like tracery.

Just below Chagoopah Falls we came to a hot spring. The source, under a boulder, was so hot that I could not hold my hand in it for more than 5 seconds. Four or five ft. below the water comes out

Funston Creek

Upper Kern region.

into a rather large pool - the water is still warm and the pebbles are covered with algae and toward the lower part there is some floating algae. I took specimens for Setchell.

At Funston Creek we climbed out of the canon over the talus. Thence up the hill where I had a fine view of Mt. Mills & Mt. Whitney. Before leaving Funston Creek we lunched.

Specimens of the large white fl. Gayophytum on the trail up Funston Creek in habit looked strikingly like Epilobium paniculatum

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plants in late summer.

Coming up the Funston Creek trail, west wall of the Kern Canon, were found several Pinus monophylla trees of characteristic aspect & habit they have very sharp needles. The high montane Madia, flowers yellow, without purple or brown base, which I have collected before - counted the rays at the Funston Creek Camp - 8 invariably.

The Helianthus - Bidens like thing which I collected on the edge of a brook on the Coyote Pass trail, no , I note in a similar situation

Funston's Meadow
Mountain (upper Kern region)

on Funston Creek. The foliage seems very slightly glaucous; rays 9 to 11 and 2-toothed; flowers yellow.

At Funston's Mountain Mdw. which is a large round mdw. - one of the finest I ever saw - we had an elegant view, ~~we had~~ an elegant view of Mt. Kaweah and the ragged peaks to the west, part of the Sawtooth Range, and which farther southward lie at the head of Shotgun Creek, a branch of the Little Kern.

From Funston's Creek to Funston's Meadow the plateau was covered with the finest

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forest of Tamarack I ever saw - an almost pure forest of considerable extent and the trees many of them 5 or 6 ft. in diam. Saw a fine Jeffrey Pine 6 or 7 ft. through. Between Funston's Mdw. & the Big Arroyo were some magnificent Juniper trees 60 or 70 ft. high, the largest I ever saw, their tops intact. In the bed of the Kern this morning I noticed a Populus trichocarpa trunk 2 ft. in diam. Jeffrey Pines run from mostly 2 to 5 ft. diam.

Big Arroyo
upper Kern region.

Camped in the very bottom of the Big Arroyo canon at a little meadow. Night Camp.

Tomorrow we are to cross the "Poison Meadow Country", viz. Soda Canon. We shall find the skeletons of riding and pack animals, horses and mules whitening in the meadows. As to what is the poison is not known. Some say one thing, some another. Most mountaineers think it some plant. A few say it is the water. Funston, an old-timer here, now dead, claimed death was caused by an indigestible "moss" and that it is not poison

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but acute indigestion. Mr. H. does not believe that there is any poison in the Big Arroyo meadows, nor any beyond the Pass, Alexander Pass, at the head of Shotgun. He also thinks the first two meadows in Soda Canon safe but will not live up to his belief By risking his animals eating there. We are to lead our animals tomorrow to prevent them eating there or anywhere this side of Shotgun. One man lost five animals on one of the meadows and put up a sign recording his loss and cursing the country. The animal dies the same

Big Arroyo
Upper Kern region.

evening or the next day. Mr. Hopping has crossed twice and lost an animal each time.— The second case from poisoning certainly. The second day, after leaving Bowden's Cabin, the horse kept wandering from the trail and stopping and at noon refused to eat. That afternoon trembled and shook as if she had chills. Took off the pack and put it on one of the other animals. She laid down and the next morning was found dead, camp having been made a short distance beyond.

They say mules poison more quickly than horses.

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Staked animals poison more quickly than unstaked ones a fact which is not known, but for which there is good reason. An animal probably does not select the plant even if not attempting to avoid it and if allowed to range free would get less of the poison. One man would take "no risks" and staked his horses but said indifferently that he didn't care if the burro was poisoned. In the morning the loose burro was alive and the two horses were dead! Some people inquire: Is it not "Black Fern"? Mr. H.

Soda Cañon

Upper Kern region.

says no; Black Fern poisons sheep by the hundreds if they get to eating it - but sheep only. What is Black Fern* I ask. All sheep men in this region know it. John Broder knows what it is. If Funston were alive a great amount of information could be had from him. He died two years ago.

Noted several fine trees of Pinus monticola with thick clusters of cones.

Friday, Aug. 10.

Struck up Cañon from the camp on the Big Arroyo at 7:00. After about 2 miles we turned up over a rocky

* = Pallasia ornithopus. See p. 165.

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hill, and entered Soda Cañon; - Soda Creek, marking the place where we turned up. Travelled Soda Cañon for 3 miles; here are several meadows that are judged most dangerous. I collected nearly everything in these meadows. We lead our animals and did not allow them to either eat or drink until we got on the headwaters of the Little Kern.

Poison Meadows: noted:

Gilia, opp. leaved sp. white flowers like pls. coll. Kearsarge Mile.

Mimulus primuloides.

Yarrow - same as coll. Cottonw.

Fragaria - same as coll. West Vidette.

Arnica Chamissonis

Soda Cañon

upper Kern region.

Trifolium monanthum Gray
Hypericum anagalloides.
Ledum glandulosum.
There is also here the
Tamarack, Red Fir, Monticola,
Jeffreyi.

There are fine trees on the
Big Arroyo and in the Basin
just beyond Little Clair Lake
- see ahead. In Soda Cañon
there were fine Red Firs 6 or
7 ft. through and around
Shotgun (Alexander) Pass fine
big Foxtails sloping up to
their toothpick summits -
dead & shining - but 5 or 6
ft. through at the base.

Tamarack, Jeffrey Pine, Red Fir, then
Monticola then Balfoussiana - 2 mos at pt. of
Soda Cañon in turning up to Little Clair Lk

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Mr. Hopping has measured Sugar Pine cones 19 1/2 in. long. The measurement of monticola cones given by Lemmon the Klinks away off; so do I.

Pinus monticola in Soda Cañon has a very smooth trunk, though slightly checked. No trunk can compare in smoothness with the Tamarack.

Pinus monticola 1 yr. old cones slender, often curved, even very much curved at point, black and green.

After traveling about 3 miles up Soda Cañon we turned up (South) a most sharp and difficult hill

Little Claire Lake.

Upper Kam region.

to a most beautiful mountain lake which rests just below the sharp granite peak which held our attention as we came up Soda Cañon. This peak shows well, I hope, in a photograph of Upper Soda Cañon. The cañon runs on to the right amidst a cluster of sharp granite peaks which stand out from the ridge. We lunched at this lake which we named "Little Claire Lake", putting a sign on ~~the~~ a tamarack tree at the northern end. Then after a trifle over an hours rest we climbed (1:30) south over a low but rather

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sharp ridge (after having skirted around the lake to its southern end where is a fine grove of foxtails) and went down into the "Basin", skirting a lake and pulling up around the upper end of the basin over a long series of granite and rock slopes away up in the air to the pass at the head of Shotgun Creek. Alexander Pass – 6 miles from the Little Claire Lake divide. To the right of Shotgun Pass is a high sharp and prominent peak with several others to the north equally or almost as prominent. Had a fine

Alexander Pass.

view of the red mass of Mt. Kaweah and also of Mt. Whitney and Mt. Tyndall. This is all granite on this direction. But the view that pleased me most was not granite, but the prospect of the great series of blue ridges to the south, the immense country of the Big & Little Kern and Southward. The whole south slope of the pass is filled with fine sand-like granite ;- down the pass over this the trail is very steep but I enjoyed this part very much, the trail slanting all the way down and not zig zagging except near the bottom.

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It is really a dangerous place because in one or two places the animals are likely to zig zag to avoid a steep place and get out on smooth granite and so slip off; both Hot Haste and Blossom tried to zig zag out and came nearly getting on to the granite which was nearly hidden by the down-sliding sand. Below this we struck timber line and went down, down, down. The Shotgun Creek came and after getting low enough lugged around the mountain side; keeping at

Farewell Gap.

of the cañon and pulling towards a saddle to the extreme right which had for some time been visible. Just this side of the saddle we joined the Coyote Pass trail and over the saddle fell into the main trail to Mineral King on the headwaters of the Little Kern, leading into Farewell Gap. It was nearing night and the wind blew down the Gap fearfully cold. But the colors were magnificent, the red walls of the cañon, the green and grays in the cañon bottom, and away up in the sky the granite ridges, the last rays of

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the sun turning the blocks of granite into irregularly piled-up masses of silver

Saturday, Aug. 11.

We camped last night about 1 mile above Broder's Cabin, choosing a little circular spot in a clump of willows which were dense but only about as high as our heads. This morning the water was frozen in the coffeepot. It was an extremely cold night. We got into camp about 6:30 or 6:30. Broke camp this morning at 7:25.

At Mineral King I find a letter and University Calender from Mr. Stone;- I shall get back

Atwell Mill.

East Fork Kaweah River

to my duties at the University just on time by help of stage and steam. Moved at Atwell Mill at 12:30; left at 6:06; arrived at Trangeri, in the moonlight, at 8:30 P.M. Opposite Atwell Mill a forest fire ran up the mountain side clearing out the trees in a band that was wonderfully clean. Big Tree Redwood seedlings are now coming up there by thousands says Mr. H. At Atwell's Mill they have burned up the mill waste - cuttings and rubbish - and in the burns the redwood* seedlings come up so promptly that they grub them out.

* Sequoia gigantea.

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A mule always thinks you are going to hurt him. He may in certain cases by continued kind treatment apparently get cured of this notion - but he is in reality never cured. He can't be cured. He is tired of waiting for the attack which never comes and he relapses into a sort of passivity - this is merely deceit.

After we got into Trangeri last Chance the quiet of the evening was not even disturbed by the moonlit mule bells. A mule will rest before eating; a horse goes to eating right away.

Atwell Mill.

East Fork Kaweah River

Acer glabrum, at 7750 ft. highest point on the Mineral King road - three or four bushes.

Arnica Chamissonis ? no. collected at the camp above Broder's Cabin (Broder's Flat);- rays yellow, turning white, often a white band next to disk turning first.

Look up address of Cambridge people who have Botany of California for sale - for Mr. Hopping.

Stumps at Atwell Mill.-
11 ft. 8 in., at 4 ft.
No. rings = 1485

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Radius in direction of count = 6 ft. 6 in.
In 2 ft. 8 in, 750 rings - towards outside.
In 3 ft. 7 in, 735 rings - inside.

There is, as is usual at a lumber camp, a great deal of sheer destruction going on. A chopper told me that they destroyed through ignorance in felling and logging a vast amount and that the logs gotten out and sawed cost all they were worth.

Trangeris to

Mule-train left Trangeris at 7:25. Arrived at Ruin Bridge - east fork Kaweah - at 10:30. Had a most invigorating swim in the Kaweah. Left at 1:05. Hal Hasterman pretty lame. He has been going more or less lame ever since leaving Junction Camp but now he is dead lame. We had his last shoe replaced at the Soldier Camp just below Mineral King but it did not seem to make much difference.

However we got into Redstone Park at 4:00 o'clock. Now I had opportunity to break my long fast as to

Redstone Park, Aug. 12.

fruit and enjoyed especially the peaches; also the milk. Sudworth of the U.S. Division of Forestry is here. Had a long talk with him this evening. He says he was offered the place at Yale Tourney took. He is going to work the Sierras southward from Yosemite to Mt. Adelaide, or until the snow drives him out - 2 1/2 or 3 mos. work.

It took me late in the night to pack up all my plunder - specimens, blankets, saddles, etc but I am now all ready to go out.

Visalia

Left Redstone Park on the stage at 6:30 getting into Visalia at 11:30. At Redstone the stage-drivers, noting horses lying down in the fields with their heads on the ground observed that horses "in the East" (extreme East) do not do so. Is this true? As to bears he says one always sees a black and a cinnamon when seeing two; in the case of cubs that one is a cinnamon and the other a black, and that the cinnamon is always the larger.

When going camping

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take plenty of blankets and plenty of sugar. I have been very comfortable this trip because I had plenty of blankets. Camping parties usually run out of sugar. It is a mistake by taking little clothing, or bedding to try to harden one's self. The way to harden is to keep warm, sleep warm, to have plenty of as good food as possible and build up the strength of the body by exercise. In this way one will become hardened and be enabled to endure hardships and withstand cold.

San Joaquin Valley.

Took 8:00 train for San Francesco.

Centromadia fungens - by which I mean the San Joaquin Valley type - is common below Cottage and Visalia - 4 ft. h. Also about Goshen Junction. On the level plain about Hollis it colors the alkali plains for miles - a greenish - yellow. An Atriplex is mixed with it.

About Mendota the Atriplex bushes of the sp. are clustered about on the alkali like little hay cocks. A bit further along, especially on the west

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side of the track the alkali is almost perfectly barren for miles.

Opposite Los Banos one can see the low hills of Pacheco Pass; south a series of high mountains and some sharp peaks and then another depression not so low; and another similar range. North of Pacheco Pass one sees faintly the first pines visible and again in several mountains northward but not far northward.

Ammi majus - to be looked for near San Lorenzo. I saw it from train.

Arrived in Berkeley at 4:30.

Check up Common names & x-refs. p. 1-97

Common names and x-refs, pp. 1-97, have never been tied up with field nos.

Mt. Whitney Trip.

No. 1030. Ribes amarum McCl. Lookout point, Mineral King Road. "Prematurely ripened" - Mr. Hopping.

No. 1031. Quercus Breweri Engelm. Slapjack Gulch to Davenport's - not common but frequent.

No. 1032. Madia elegans ssp. wheeleri (Gray) Keck - above Mineral King.

Tulare Co.

cf. note on p. 98.

No. 1033. Umbellifer. Root very strong-scented and somewhat fragrant. Above Mineral King. Ligusticum Grayi C. & R.

No. 1034. Hypericum anagalloides C. & S. Lion Mdw.

No. 1035. Eriogonum. Farewell Gap.

Farewell Gap. Tulare Co.

No. 1036. Crucifer. Arabis Lemmonii Wats. Farewell Gap.

No. 1037. Saxifragaceous. Heuchera rubrascens. Farewell gap.

↑ Torr. ~~var. pringlei Jepson~~ var. nevadensis Jepson of Man. of Fl. of Cal.

No. 1038. Didalcea glaucascens Greene. Lion Mdw. The smaller corollas but 2 1/2 or 3 lines long.

No. 1039. Argemone munita Dur. & Hilg. Near Burnt Corral. Only a few plants. ~~A. platyceras var. hispida~~ Brain.

No. 1040. Ceanothus cordulatus Kell. Camp in Old Kern Bed, 6600 ft., near Front Mdw.

No. 1041. Solidago. Old Kern Bed. Rays 14, 14, 15. 6600 ft.

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No. 1042. Lemnaceous. Meadow stream, at camp in old bed of Kern. 6600 ft. i.e. near Front Meadows.

No. 1043. Chenopodium album? Old Kern Bed. Carried in, doubtless, by sheep. 6600 ft.

No. 1044. Nicotiana attenuata Torr. Corolla limb about 1/2 in. wide when expanded. Old bed of Kern, near Front Mdw. 6600 ft.

No. 1045. Pentstemon fruticiformis Cov. Old Kern bed. 6600 ft. near Front Mdws.

No. 1046. Polygonum amphibium Kern Lake. Aquatic

Junction Camp, 8075 ft.

No. 1047. Conyza canadensis (L.) Cronq. Erigeron. Lower Funston Mdw. Also apparently the same thing seen - 3 times as large. See 1124.

No. 1048. Gentiana Amarella L. var acuta Gentian Mdw. See p. 47. Herder.

No. 1049. Gentiana serrata var. holopetala (Gray) Holm. = Microsteris No. 1049a. Gilia gracilis Hook.

No. 1050. Geum macrophyllum Willd. Junction Mdw.

No. 1051. Eriogonum nudum var pubiflorum Junction Camp.

No. 1052. Viola blanda Willd. Junction Mdw.

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No. 1053. Lupinus confertus var. Sel. C.P.S. Sandy streaks among Tamaracks. Junction Camp. = L. torreyi Gray group, not confertus Hartg.

No. 1054. Rubus leucodermis Dougl. Kern River Cañon, 2 mi. above Chagoopah Falls.

No. 1055. Monardella odoratissima Oth. Ssp. parvifolia (Greene) Upper Kern Cañon to (Crabtree) Whitney Creek.

No. 1056. Castanopsis chrysophylla Two inflorescences. 1. Inflorescences in the season with ♂ and ♀ fls. 2. Inflorescences 1 yr old showing 1 year old burs and old staminate flowers not yet fallen. It takes two years for the burs to ripen

Mt. Whitney, 14,501 ft

No. 1057. Ceanothus velutinus Dougl. Head Kern Cañon, above Junction Camp. Tallus

No. 1058. Eugeron foliosus Nutt. Rocky tallus, Kern Cañon, above Junction Camp.

No. 1060. Gayophytum ramosissimum T. & G. Junction Camp, Kern Cañon.

No. 1061. Composite. Suffrutescent. Whitney above Langley Mdw.

No. 1062. Axyria digyna Campt. Mt. Whitney above Langley Mdw.

No. 1062 A. Gentiana detonsa Rottb. Same loc. Not G. Newberryi Gray.

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No. 1063. Aster gelidus Jepson n. sp. Whitney, just above Langley Mdw, about 12,000 ft.

No. 1064. Aster Andersonii Gray Same loc.

These 2 numbers mounted on one sheet as A. Andersonii Gray.

No. 1065. Crucifer. Draba breweri Wats. Same loc.

No. 1066. Oreocarya nubigena Greene. Mt. Whitney. 12,500 ft.

No. 1067. Hulsea algida Gray. Highest plant; common above "pass". See p. 59 supra.

No. 1068. Dodecatheon Jeffreyi Moore. Mt. Whitney, just above Langley Mdw.

See p. 58 supra.

Mt. Whitney; 14,501 ft.

No. 1069. Erigeron compositus var. glabratus macoun.
Mt. Whitney

No. 1070. Gentiana Newberryi Gray
Corolla white inside and greenish dotted. Open only in sunshine. Petals with green bands outside and ~~and~~ white sinuses. Appendages with 1 or 2 teeth. See p. 58.

No. 1071. Antennaria alpina Gaertn. var.

No. 1072. Potentilla gordonii Green = Ivesia pygmaea Gray
var. pygmaea (Watz.) Jepson.

No. 1073. Calyptridium umbellatum var. candicifera. Spraguea
All 3 preceding on Mt. Whitney. No 1073 above "Pass" and one of the highest plants

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No. 1074. Erysimum asperum Dc. = E. perene
var. perenne Watz. Mt. Whitney,

No. 1075. Eriogonum ~~incanum~~ polypodum Small.
T. & G. Mt. Whitney.

No. 1076. Eriogonum ~~incanum~~ polypodum Small.
T. and G. Mt. Whitney.

No. 1077. Ranunculus oxynotus Gray. Mt. Whitney.

No. 1078. Carex phaeocephalus Piper.
Mt. Whitney.
Above Camp Langley = 12,500 ft.

No. 1079. Juncus parryi Engelm. Det. F.V.C.
Mt. Whitney

No. 1079a. Eriogonum polypodum Small

No. 1079b. Eriogonum "

Mt. Whitney.

No. 1080. Grass. Poa nervosa Vasey
Mt. Whitney.

No. 1081 + 1081a Grass. " "
Trisetum spicatum (L.) Richter

#1081 B. Trisetum wolfii Vasey
No. 1082. Grass. =S. hystrix (Nutt.) J.G.Sm.
(This no. used) Sitanion californicum J. G. Smith

No. 1083. Poa Grass. Suksdorfii (Beal) Vasey ex Piper
(This no. used) ~~Poa Leibergii Scribn.~~

No. 1084. Solidago " "

Carex Breweri Boott. Det. K.K.M.
No. 1085 ↑ Cyperaceae. " "

No. 1086. Senecio. muirii. Greene.
Rays yellow, 11613.

No. 1066. Cryptanthe
Fls. white; crests in throat. Corolla 2 lines in diam. Whitney trail in "pass"

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No. 1087. Eriogonum ovalifolium Nutt. var. nivale (Coenby.) M.E. Jones. Mt. Whitney.

No. 1088. Salix arctica.
Mt. Whitney.

No. 1089. Phacelia dasyphylla Greene.
Mt. Whitney, trail to summit - in "pass" = P. frigida Greene.

No. 1090. ~~Juncaceae~~. Luzula spicata DC. Mt. Whitney

No. 1091. Poa suksdorfii (Beal) Vasey ex Piper
Grass.
Mt. Whitney.

No. 1092. Cyperaceae.
Mt. Whitney

— Primula suffrutescens Gray. Mt. Whitney. No. 14,592.

Mt. Whitney.

No. 1093. Cirsium drummondii
Foxtail Camp.

No. 1094. Saxifragaceous.
Foxtail Camp. Heuchera rubescens Torr. var. ~~pringlei Jepson.~~ = var. nevadensis Jepson, Fl. Cal. of Man.

No. 1095. Crucifer = Descurainia richardsonii ssp. incisa = Sisymbrium incisum Engelm.
Foxtail Camp.

No. 1096. Ribes velutinum Greene ~~montigenum Mell.~~ → ok
Foxtail Camp. Both species were collected under this number and both were cited " " " in the Flora Vol. 2, p. 150 + 153. LRH in 1967

No. 1097. Cirsium occidentale
Foxtail Camp.

No. 1098. Parnassia palustris var. California Greene. See p. 67. Gorge of Whitney (Crab-tree) Creek, just below point where the stream cuts through the cliffs. See descrip. Aug. 8, p. 67.

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No. 1099. Composite
Hot Haste Camp.

No. 1100. Arctostaphylos patula Greene. (The common high montane manzanita on plateaus and tallus from Whitney to Farewell Gap). Gorge of Whitney Creek.

No. 1101. Cirsium drummondii
Canon bed of the Kern, in moist mdw. between Rock Creek and Upper Funston Mdw.

No. 1102. Black Cottonwood populus trichocarpa T. & G. sprouts, but not from old trees. Kern Canon Bed, near Rock Creek.

Kern Cañon, 6900 ft.

No. 1103. Salix

Common in Kern bed, 10 to 20 ft. h. Near Rock Creek.

No. 1104. Salix melanopsis Nutt. Ditto.

No. 1105. Near Rock Creek. Juniperus occidentalis Spms. from two trees close together but differing in appearance.

No. 1106. Castilleia

Kern Cañon, near Rock Creek

No. 1107. Ribes cereum Dougl.

5 or 7 ft. h. Kern River Cañon bed above Big Arroyo.

No. 1108. Near Kern Lake.

Garrya.

Tulare Co.

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No. 1109. Salix scouleriana Barr.

Common along dry mountain streams or small living streams. Funston's Creek. Specimens from same tree, showing young sterile shoots with large leaves, from base of tree or bush.

No. 1110. ~~Compositæ~~ Tetradymia canescens DC.

Funston Creek to Funston Mountain Mdw. Dry mountain ~~meadow~~ side.

No. 1111. Aster X integrifolius Nutt.

Funston's Mountain Mdw.

Tulare Co.

Poison Meadow, 9000 to 9500 ft.

Soda Cañon, near Big Arroyo.

No. 1112. Eriogonum wrightii var. trachycaulon
Foot of Soda Cañon, on leaving the Big Arroyo.

No. 1113. Quercus vaccinifolia
One of the low shrubs which figure on the steepest cañon walls of the Kern. Prickly leaves are common. Trail to Funston Creek from Kern Cañon bed.

No. 1114. Pinus monophylla. Torr. + Frem.
West wall of the Kern, near Funston Creek, 1/2 way to top.

No. 1115. Gentiana ~~serrata var.~~ holopetala (Gray.) Holm. Poison Mdw., Soda Cañon.

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No. 1116. Umbellifer.
Poison Mdw., Soda Cañon.
Eulophus parishii C. & R.

No. 1117a. ~~Grass~~ Agrostis scabra Willd. Poison Mdw.
(det. Beecher Crampton, Nov. 13, 1975)
no. 1117b. Deschampsia elongata (Hook.) Munro ex Benth.

No. 1118. Gyrostachys. " "
(Destroyed by insects).

No. 1119. Senecio ~~covillei Greene~~ scorzonella Greene Poison Mdw.

No. 1120. Deschampsia elongata Grass. " "

No. 1121. Trisetum projectum Louis-Marie ~~Grass~~ " "
(Det. B. Crampton, Nov. 75)

No. 1122. Mimulus. " "
tilingii Regel.

No. 1123. ~~Caryophyll~~ Montia? " "

No. 1124. Erigeron coulteri Porter " "

If all 3 Erigerons O.K., attend to cf. 1047, cf. 1125 → ? Erysimum? sheet, in Erysimum cover

Julian Co.

Soda Cañon.

9300 to 9700 ft. near Big Arroyo.

No. 1125. Erigeron. Poison
cf 1124 Mdw., Soda Cañon.

No. 1126. Thalictrum, Poison
Mdw. (sparsiflorum

No. 1127. Phleum alpinum L.
Grass. Poison Mdw.

No. 1128. Gentian. " "

No. 1129. Aster. " "

No. 1130. Cyperaceae. " "
Carex luzulaefolia W. Boott.

No. 1131. Cyperaceae. " "
Det. K.K.M. Carex abrupta Mackenzie.

No. 1132. Grass. " "
Deschampsia caespitosa (L.) Beauv.

No. 1133. Aster. Andersonii Gray

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No. 1134. Pedicularis, attollens Gray. Poison Mdw.

No. 1135. Solidago. " "

No. 1136. Grass. Bromus ciliatus L. " "

No. 1136a. " " Umbellifer.

No. 1137. Barbarea orthoceras Ledeb. Poison Mdw.

No. 1137a. Farewell Gap. Gentian

No. 1138. Streptanthus tortuosus Kell. var. orbiculatus Hall. Farewell Gap.

No. 1139. Gentiana calycosa Griseb. Farewell Gap

No. 1140. Angelica lineariloba Gray. Farewell Gap.

No. 1141. Lupinus covillei Greene. Farewell Gap.
Det. also C.P. Smith.

Farewell Gap.
Tulare Co.

No. 1142. Monardella odoratissima ssp. pallida Bth. Farewell Gap.

No. 1143. Oxyria digyna (L.) Hill
Farewell Gap.

No. 1144. ~~Composite~~ Raillardella scaposa Gray. See p. 90.
Farewell Gap. South side.

No. 1145. Farewell Gap. south side. Allium validum Wats.

No. 1146. ~~Ambrosia~~ Artemisia douglasiana Bess.
Farewell Gap, south side.

No. 1147. Artemisia ? Norvegica Fries.
Farewell Gap.

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No. 1148. Composite
Broder's Flat Camp.

No. 1149. Ligusticum apiifolium Brew. & Wats. Umbellifer.
Farewell Gap.
= L. Grayi C. & R!

No. 1150. Salix orestera Schn. - low bushes, north side of Farewell Gap.
S. glauca var. villosa Ind.

No. 1151. Streptanthus tortuosus Kell. var. orbiculatus Hall.
Farewell Gap.

No. 1152. Gentiana calycosa Griseb. Below Farewell Gap.

Mineral King.

No. 1153. Brodiæa grandiflora Smith. Anthers deeply emarginate at apex; staminodia acute, rounded or notched, equalling the anthers. Rocky soil, Mineral King. (= B. coronaria Jepson).

No. 1154. Lonicera conjugialis? Kell. Mineral King.

No. 1155. Angelica Breweri? No. Mineral King. = A. lineariloba Gray. See ante, 4: 177

No. 1156. Senecio Mineral King.

No. 1157. Torreya californica Torr. Redwood Cañon. Trees 15 ft. h or less.

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No. 1158. Eriogonum roseum (1853) virgatum (1894) Mineral King road near Redwood Cañon. East Fork Kaweah River.

No. 1159. Eriogonum virgatum Near Redwood Cañon. East Fork Kaweah River.

No. 1160. Monardella lanceolata. Mineral King Road. Each of the linear ~~calloo~~ corolla segments with a callous point; 5900 ft. East Fork Kaweah River.

No. 1161. = Prunus Cerasus emarginata Walp. ~~Dougl.~~ Mineral King road above Atwell Mill, East Fork Kaweah River.

No. 1160 A. Alga, Hot Springs in Kern Cañon.

Redstone Park,
N. Fork Kanawah

No. 1162. Coreopsis
Rays 13, violet-purple.
Annual.

No. 1162 A. Leucelene.
Redstone Park, dry
hills.

No. 1162 B. Gentiana ~~serrata var.~~
holopetala (Gray.) Holm Mineral King.

No. 1162 C. grass Setaria glauca (L.) P. Beauv.
(Det. Beecher Crampton, Mar. '12)
Britten's Store, Three
Rivers. "Can't kill it out by feeding,
can kill it by cultivating. Cows
give a great deal more milk by
feeding on it. Two to three times
better than alfalfa. Stock love it.
Stands a great deal of water."-
Ernest Britten. It is a

Aug. 12, 1900

Species of Paspalum acc. Davy.

— coming down grade from Mineral King one meets the heavy freight wagons, six and eight- horses, the leaders wearing the old- fashioned sets of Bells. The Bells serve to warn us of the approach of a team on the grade but of course that is not the purpose of the Bells which is to start the team in unison and to make them pull in unison. The driver has only to start the leaders and the Bells and the whole team settles into the collars.

To the Goddess of Botany.

When the mule-train stops in the middle of a river and will budge, when the pack slips off on the worse sort of a trail and one thinks of ~~saying~~ things perfectly safe to say in the wilderness, when the mule kicks and ~~is~~ one is barely out of range — then remember that we are in need of spiritual help.

General Notes on the Whitney Trip.

The Funston Meadows are not carefully distinguished on the map. There is the Lower Funston Meadow and the Upper Funston Meadow, both in the bed of the Kern Canon. Then there is Funston's Mountain Meadow which lies on the plateau above the Kern Canon, and just south of Mt. Kaweah. One passes over the very lowest basal slopes of Kaweah, in reaching it from the Kern Canon.

General Notes on

The creek flowing into the Kern at the Fenced Meadow has three names: Whitney Creek, Golden Trout Creek, Volcano Creek. and it may be called in addition Old Whitney Creek. It seems to me misleading to call it Whitney Creek. Of the remaining two I prefer Volcano Creek; the creek is more or less lined with old crabs and there is the lava flow everywhere.

The name Whitney Creek properly belongs, or at least is more fitting

the Whitney Trip.

for Crabtree Creek. There are no crabtrees in the creek; there could not be on account of the altitude, and I wondered wherefore Crabtree. Crabtree, as I might have guessed, was the name of a herder of sheep.

Query Page.

Mr. Hopping:

Crops of the Douglas Oak?

Mt. Whitney Power & Light-
How much used for
power in Visalia?

Cry of the California
Mountain Lion?

How much snow fall at Red-
slide Park?

Daily change of wind in the mts.

Did you ever see a yew?

Rattlesnake's eggs?

Scorpions & manner of
Centipedes. & stinging.

Bears in Kern River Cañon.

I have always heard that bears could climb trees but I supposed that it was was hard work for them and that they had to climb up "hand over hand" or paw over paw and more or less slowly. So I was treated to an unexpected sight. The bears met on the trail hustled up a Jeffrey Pine (clear of branches for forty feet or so), almost ran up; went up as fast as one could walk up stairs say; in a moment or so they were out of sight among the branches.

Altitudes, Mt. Whitney Trip.

Visalia Board of Trade. Party.

Mineral King	8000
Farewell Gap	10600
Shotgun Mdws	9300
Lion Mdw.	6700
Burnt Corral Mdw.	6300
Trout Mdw	6300
Lower Kern Lake	6200
Upper Kern Lake	6300
Lower Funston Mdw.	6500
Upper Funston Mdw.	6700
Junction Camp.	8075
Top of Canon wall	10800
Crabtree Mdw.	10700
Langley Camp	11800
Edwards Mdw.	6500
Coyote Trail Mdw.	9500
Round Mdw.	6650

Altitudes, Estimated.

- Poison Meadow in Soda Canon	9500
- Foxtail Camp	11500
- Natural Bridge, Volcano Creek	8500
- Milkey Mdw.	9000
- Horseshoe Mdw.	9000
- Alabama Hills trail	4000
- Kearsage Mill	5000.
- Onion Valley	6500
- Wildflower Lake	8000
- Meadow, upper Bubb's Creek	9000.

Altitudes - Estimated.

Colony Mill	5000 ft.
Cedar Creek	4000 ft.
Williams Meadow	8500 ft.
Horse Corral Mdw	7410 ft.
Summit Mdw	7650 ft.
Summit (upper trail to King's C.)	8100 ft.

Altitudes - LeContes Map.

Big Cottonwood	9260
Lone Pine	3810.
Carroll Creek	5200
Kearsarge Pass	12056
Bullfrog Lake	11000.

Squirrels in Giant Forest.

Continued from vol. 3, p. 197.

Early in the morning about our camp the squirrels are busy in the tops of the Sequoias cutting off cones for their provender. The cones come down dancing a bit on the spongy ground, making a fairly noticeable shower. After my breakfast I start to pick up these fresh cones because they contain good seed. Up and down the trunk, even coming down to the ground race the squirrels barking shrilly, crying out loudly against my depredations!! They are most vociferous, and show boldly their sense of outrage.

Query Page: Mr. Hopping.

What oaks sucker from the stump when the tree is cut close to the ground?

Do the Buckeyes bear a crop every year? First is does each tree?

Blue Oak does not sucker. Valley Oak does not sucker. - the only exceptions to this would be the case of a very young tree.

- Sequoia gigantea Dec.

Mr Hopkins says Big Tree cones mature in one year - he has never seen 2 sizes of cones on the trees. He has cut trees in Atwell Mill forest in winter and has seen the trees come down in the summer. The trees send down a crop of cones every year. Some trees do not bear well - are not fruitful, - but the trees generally bear heavily and do bear each year.

Kawzah.

Traveling over the San Joaquin Valley plains towards the Sierra Foothills is familiar with the same sort of country northward. But when one gets into the foothill there is a sense of disappointment; there is something missing; what is it? It is the absence of the Digger Pine, the characteristic tree of the foothills northward.

Kawzah, Dec. 28, 1901.

- John Fleming cut a small tree 5-25 years old 6 ft. 1 in at Atwell's Mill. (Sequoia gigantea)
- Buckeye is used a great deal for fence posts in the Kawzah It makes better fence posts than the redwood because the wood lasts longer - "never rots". The buckeye is sometimes large enough to make split posts. Of course the posts here are used for wire-fencing almost exclusively. There is nothing like Buckeye wood for brake blocks - nothing that holds the wheel or last as long. - except leather (so well) which is expensive. A piece which fits the wheel - a curved piece - is selected.

Kawrah, Dec. 28, 1901.

- Mr. Ralph Hopping says 33% of the Douglas Oaks are rotten at the core. Sometimes the tree is only partially rotten but usually the rotting extends into every limb and branch. A tree felled yesterday had to all appearance from the outside a sound trunk but the rotting which had begun in the upper part of the tree at dead limbs extended downward to the very base of the trunk. I have found, thus far, two shelf fungi - Polypori - on the trunks of this oak.

- Valley Oak, Ld veteran at Redstone Park circ at 4½ ft. = 16 ft 8 in. Tree nearly dead but irrigating ditch carry through & now it has taken on new life.

Kawrah, Dec. 28, 1901

- Sycamore just shedding its leaves - they (the leaves) have turned a most beautiful deep bronze, which under the winter sunlight is most attractive and makes a very beautiful picture. I have just measured a fallen leaf 20½ in. broad and 13 in. long.

- The Cottonwood has shed its leaves except at the very top of the tree where there is a broad yellow band crossing like a signal flung aloft. One can pick out the Cottonwood from all other trees in the valley bottoms by this single mark.

Kawrah, Dec. 28, 1901.

- The Douglas Oak shows its diseased condition by being or rather becoming very twiggy, that is the transition from branch to twig in size is abrupt not gradual and the "twigginess" is of large branches mostly. Sometimes the whole tree presents a highly twisted or warty appearance, the knot-holes in full evidence since the whole tree seemed to be a shell. Great branches and limbs, from 1 or 2 ft. thro' drop off, and lie about on the ground.

Kawrah. Dec. 28, 1901.

- Mr. Hopkins 14 animals "skorted" from the "Fenced Mdw" one day last summer. He sent Armine Grenigen to see if they had gone back up the Whitney Trail, who reported they had not. Armine was then sent up the river to Fenstin Mdw and finally Hopping himself went up to Coyote Pass, but finally satisfied himself that they had not gone in that direction. He then returned and went to the foot of the Whitney Trail and saw plainly that they had gone up. Armine had examined the trail on the flat - but horses spread out on the flat - and only bunch again when they hit the up trail on the mountain side.

Kawaah

- Quercus Wislizenii - exhibits in size, thickness, slenderness of acorns parallel variations with Quercus Agrifolia as shown by my series of specimens collected in November, 1901. The acorns here are sometimes as slender as lead-pencils, sometimes short and thick, sometimes with thin scales to the cup, sometimes with roughish scales. Trees growing near irrigating ditches or waste ways grow thick acorns just as irrigated peaches are thick and not exiguous. Sometimes the cup is turbinate; in the

Dec. 29, 1901

case of one tree I noticed that the cups fall very readily; it would be hard now to get a botanical specimen for drying showing the cups in position on 2 yr. wood. Another tree ~~close~~ hard by with identical foliage and like habit exhibited hemispherical cups that did not fall readily and had a fuzzy edge to the cup. But another tree with like cups had no fuzzy edge to the cups.

- In Exeter Penny Press of Exeter, issue of Dec. 1901, I find the following under local retail prices: Wood, Valley Oak, $4.50 per cord. Mountain Oak [Quercus Douglasii] $5.00 per cord; soft wood $3.50. The "soft" is doubtless pine or willow

Kawrah

- The Douglas Oak does not stand excess of irrigation. Trees near the irrigating ditches or in fields that are irrigated, as at Bartons, die, or are cut down for fire wood before dying entirely in order that they may be cut up for firewood more readily.

The Live Oak (Quercus Virginia) can stand any amount of water, as can the Valley Oak where it will flourish in door-yards or in irrigated valley fields - but continued watering will kill a Valley Oak when the watering is heavy, say in 5 or 6 years, but a Live Oak can stand any amount.

Dec. 29, 1901.

- One can spot every single tree of Douglas Oak on the bare curved side of the east canon wall of the north fork of the Kawrah. Every one stands out sharply in the soft winter sunlight - all have their leaves turned to a dull reddish - brown. Those on the flat have quite lost their leaves - but above the frost does not strike or at least so heavily. Moreover the rocky walls radiate a great deal of heat at night.

- Quercus Virginii, spread of branches 87 ft; height 65 (or 70) ft. - Tree at Redstone Park.

Dec. 29, 1901. Kawrah.

- Douglas Oak acorns have quite fallen. Valley Oak also. Quercus Wislizenii are now falling - and doubtless have been for some time.

- Sycamore trunks will not do for posts; they rot off very promptly. Moreover you can't split Sycamore - it is very tough - so tough that the Eastern species, Platanus occidentalis is used for wooden buttons on account of the complexity of the grain, and is called Button wood.

- Douglas Oak, 43 ft. 8 in in height; 1 1/2 ft. diam - felled by Al. Redstone. Al. guessed 28 ft and 1, 32 ft! Underestimation of oak

Kawrah, Dec. 29, 1901.

- Alder (A. rhombifolia) would make beautiful posts but this rots promptly - however keep it away from the soil, as in rails - and it lasts indefinitely. The Alder trees are now hanging full of catkins 1 1/2 - 2 1/2 in. long - not in anthesis - and the persistent leaves are mostly in the top of the tree.

- Mr. Lou. Davis says Douglas Oaks on hills are very rotten, 1 in 10 good for posts, outside they look all right; if rotted in trunk limbs will be mostly rotten. On flats in valleys or near water trees in better condition. Mr. Hopping says the proportion is too high if all trees are taken, instead of only those fit for posts.

South Fork of

– Stopped all night at John Broder's and listened to tales of hunting by the men.

There is mighty little comfort on these California ranches as compared with the Eastern. Everything is "open". Hired men are expected to shift in any sort of way whereas in the East they would be provided a good room. A man comes along wanting a job. He has heard that he has to provide his own blankets and next he asks the farmer where he is to sleep (being a greenhorn). The farmer looks at him

Kawrah, Dec. 29, 1901.

and says: "Well, I guess you can go to the barn and sleep in the hay – provided you don't disturb the bugs!"

– A man on the North Fork who wasn't any too brave met a bear but the man got away. Saw a bear did you? said a solicitous friend. Yes. Was he alive? Yes, yes, he was alive, said the man earnestly. I knew he was alive as soon as I saw him coming!

South Fork of

- Cercis occidentalis, note clustered habit of the stems, always forming a small clump. Full of pods, but few good seeds.
- Cephalanthus occidentalis, Three Rivers.
- Platanus racemosa, reaches up to edge of Yellow Pine
- Maple, Large-leafed, - samaras hanging on in great clusters still. (Acer macrophyllum).

Kaweah, Dec. 30, 1901.

South Fork, Kaweah

- Quercus Brewri or undulata - shrubs 3 ft. high forming almost pure colonies 1 acre in extent just below timber line of pines in Quercus chrysolepis californica.
- Tsuga Pattoniana evergreen, 1 tree noted 16 ft. high and trunk 4 in. through.
- Pumice - 20 ft. high & 12 to 14 in. in diameter.
- Quercus chrysolepis at "Shin Oak Camp" - two trees: 7 ft. 4 in & 6 ft. 10 in.; characteristic oblong entire acute leaves green above and white glaucous beneath; trees 50 - 60 ft. high. A third tree = 10 ft. 3 in.
- Libocedrus decurrens - male cones full size and nearly ready

Dec. 30, 1901 -

for dehiscence apparently. Making considerable show in the top of the trees.

- Drift logs of Sequoia gigantea form a jam in river. Logs broken into 20 ft. lengths pretty square off; look like great antedeluvian monsters lying in the river bed - prehistoric beasts.
- Acer macrophyllum } Shin Oak Camp.
- Umbellularia Californica }
- Libocedrus male cones - 8 scales to each cone. There seem to be most commonly 6 anther-sacs under scale, otherwise 6 + 4.

South Fork of

The Painted Woods of the South Fork - the Douglas Oak in their golden brown foliage - not a high color, but a soft beautiful color, Rembrandtian, if you please. There is a field full of them here and there, the ground plowed beneath and harrowed clean. Then they run all over the hills and far up the south fork. Mr. Hopping says they will be in full new leaf by Feb. 1. so that the interval of leafless winter condition is a very short one. Contrast this with the six months hibernation of the Eastern

Kawrah, Dec. 30, 1901.

United States; so mild is our climate. The Douglas Oaks here are 45 ft. high or less.

- Ceanothus (incanus?) - wood very red when cut - at least the larger trunks.

- So far as I can judge from the leaf merely Salix nigra runs up to Slim Oak Camp. (3000 ft. alt.). Salix nigra is in the San Joaquin Valley with Cottonwood & Sycamore. The Sycamore runs higher and Cottonwood nearly or quite as high.

- John Borden's ranch is 1250 ft. alt. at ranch-house.

South Fork of Kaweah

- Cows love miseltoe: the people here assert that it will abort their calves; likewise the foal of mares
- Cows eat acorns also; horses as well; they do not shell the acorns as do hogs. Cows thus produce "acorn-calves."
- Miseltoe is on black walnut near Lemon Cove.
- The fungus in the Douglas Oak forms "punk" - this punk is very light and will float up the chimney on fire; the fire never goes out and is easily fanned into a flame - thus are houses frequently burned down in this district, from punk on the roof.

Dec. 30, 1901.

- Pellaea andromeda - "Black Fern" of the sheepmen (Aefolia Fee.) of this region - kills sheep not because it is poisonous but because the black stems break up into needle-like pieces which penetrate the intestines.

[The above note made on the spot and a spm. preserved. It now seems to me more likely that the "black stems" described are those of Pellaea ornithopus (which is common in the region), P. andromedaefolia having straw-color stems. - W.L.J., Jan. 1922].

Dec. 30, 1901

- I was picking acorns for class material. Al. Redstone came up and said: Got hogs? (going to feed them to your hogs?) Yes, said I. And do I kept on he insistently queried: What are you picking so many for? Got lots of hogs? Yes, but my hogs have to be induced to feed.

- Also Al. Redstone: surveying the wood specimens (slowwood) which I brought from Burdick and the Colony Mill; reflectively regarding the curious names with which they were decorated: "Captured after a terrific struggle"!

Dec. 30, 1901.

(see p. 25 onto)

- Lupinus micranthus grew very rankly one year in a hay field plowed the year before; was mowed; cows by the thousands came into the field to feed upon the seeds; one spot grew red flowers!; only once in years does micranthus grow so; dry year but wet in late spring.
- Ralph Hopkins, Redstone Park.

- Orthocarpus purpurascens Var. red & white flowered forms, grow in distinct spots, a patch of the red here and a patch of the white there on the hillsides, the white being the later; they do not flower at the same time. Called Skunkweed at Kanzah, a slight odor and rather unpleasant. White spikes look like little skunks tail sticking up. no. 43 of Hopping

Kawrah

- Mentzelia laevicaulis, not on Kawrah Ruiz system, acc. Hopping. In Tehipite!
- Ceanothus species, acc. Hopping.
1. C. cuneatus = Blue-brush
2. C. (incanus?) = white trunk
3. C. (green trunk) = Deer-brush white fl.
4. C. (heavy flowering) = tall freely branching as at Colony Mill), broad leaf.
5. C. (low spinous one on Marble Fork hillside) = Buck-brush
6. C. (blue fls. near Marble Fork) = green trunk) = not the same as no. 2. acc. Hopping
- Verbascum Thapsus, Kawrah.

Dec. 31, 1901

- Potentilla santolinoides = Baby's Breath, Hopkins, see his spm.
- Lilium, "Little Tiger Lily" of Mr. Hopping, very fragrant, his no. , Petals yellowish red.
Large-fl. species: Petals garnet red.

- How long does Yucca Whipplei live until it flowers? Some say 5 years, some 7 years, at Kawrah. Burdick says 7 years.

Kawrah

- "Button Willow" is a name for Cephalanthus occidentalis - in the southern Sierra Foothills There is a town called "Buttonwood" in Kern Co.
- Alder does not sprout from a cut stump. (A. rhombifolia).

- Arctostaphylos glauca* - Manzanita of the Kawrah River system from the foothills to the pines; Guy Hopping says all large trunks are hollow (rotten); he tried when cutting wood to get a piece large enough to mount a pair of deer horns.

* = A. viscida?

Dec. 31, 1901.

- Willows of the Kawrah River Bottom at Redstone Park

No. 1. - Smooth trunk, broad not pointed leaf, white wood, whitish bark

No. 2 - Rough highly fissured bark, pointed leaf, red heart to wood, young trunks reddish so that they may be picked out in a thicket from the others

- Cercocarpus is often 20 ft. high in this region. C. parvifolius.
- The average height of the large trees of Douglas Oak run 40 to 60 ft.

Kawsah

- White Oak (Q. Douglasii) at Bryants, N. Fork Kawsah, 10 ft. 3 in. circ at 4½ ft. Height = 60 ft. Spread of branches = 77 ft.

- Ash trees full of fruit - actually loaded! - Fraxinus Oregana Nutt.
- Q. lobata tree on North Fork cut 17½ cords of wood.
- Rhamnus crocea ilicifolia - "red berries not eaten by bears or birds - must be poisonous" - Lon Davis. Burdick calls it "Pis Oak" - says he has seen one kind of bird eating it but Davis says he has never seen any working on it.

Dec. 31, 1901

- Mrs. Hopping calls Calycanthus occidentalis "Vinegar Plant"; a better name might be Vinegar Bush. Mr. Burdick who calls it Sweet scented Shrub says it is not so sweet smelling as the eastern species.
- Cattle are very fond of Prion Oak on the Kawsah Ranges and keep it cropped down as do horses. It grows on north slopes in moist places.
- Mrs. Hopping calls Meconopsis heterophylla "Terra Cotta Poppy" This is the name on the north fork.
- She also distinguishes the annual poppy, Eschscholtzia, as "Mountain Poppy"

Burdick's Ranch

N. Fork Kaweah.

- Fraxinus dipetala - "Mountain Ash" - Mr. Burdick uses the name; - cut off at Burdicks, the sterile shoots grow 4 or 5 ft in. a year and are 4-sided and 4-winged, especially conspicuous the first year.
- Bay Laurel cut off at Burdicks comes up luxuriantly
- Douglas oak will sprout if the trunk is young and not cut too far down.
- Clematis Lasiantha - in fruit.
- Buckeyes - growing in steep north hillsides scattered among brush - but many of them.
- "Blue Brush" the universal name for Ceanothus cuneatus in this region.

Jan. 3, 1901.

- Mr. Burdick grows peaches, strawberries, apples (6 or 10 vars), pears (several kinds), quince, grapes (12 vars). Just below me is a fine Japanese Persimmon tree from which I have been feasting. There are also cherry trees.
- Mr. Burdick is a type of a mountaineer who came here to die of consumption 12 years ago. He is now as happy and healthy and hearty as you please. He takes pride in putting up elegant stone fences and neat log cabins. His living room takes my eye. "I have not smoked for four years. Previously I smoked,

Burdick's Ranch

only smoked once a day - but (he added with a twinkle) I didn't stop at dinner time to take my pipe out of my mouth!" This man would suit Setchell. Also John Broder who says he is going to invent a magazine pipe.

— Mr. Burdick calls Cercocarpus*, "Hard Tack" on account of the hardness of the wood. You can't drive nails into it. [illegible] has secured straight sticks 13 ft. long (for his barn) 3 or 4 in. thick. They come from north mountain sides. Always moist there,

* C. parvifolius.

Jan. 3, 1901.

never stops growing in any season. (Aesculus californica) — Buckeye / on Mr. Burdick's hill comes out into leaf in midde of March, scatted here and there on his overhanging north hillside it's fresh green leaves, so beautiful and delicate as if the whole were just squeezed out of the tubes, are in contrast with the dull color of the evergreen foliage of oaks which has gone through the winter. This is a beautiful hill, closing half the southern sky; with Douglas Oak in a variety of gesture and form standing in

Burdick's Ranch

high silhouette against the winter sky. (A. rhombifolia)
– The alders here are hanging heavy with catkins and present a beautiful sight. For about 2 wks in Feb. the up and down wind carries the pollen out like a fog – so great is the abundance. Mr. Burdick's cabin is a log cabin made of alder logs most beautifully joined together at the corners. Alder wood is a fine wood just so long as it is kept away from the soil. It is a satiny wood and takes a beautiful finish. There is a Springfield manufacturer who

Jan. 3. 1901

uses it in the finish of his finest glove-boxes.

Sequoia Park

– The soldiers are a nuisance and a detriment to the county and the Park; they do nothing that the forest rangers could not do; moreover they have absolutely no sense of responsibility. They kill deer without stint although they are sent there to protect the game; they even dynamite the trout in the creeks, especially at the Marble Fork. In former days one could always see two or three deer of a morning around the Colony Mill Spring. Now you never see any. The

January 4, 1902

soldiers will kill does with fawn just as cheerfully as a buck. I have absolute proof that they kill deer. The only officer who stopped the practice was Captain, now Major West. But Major West was a disciplinarian, a gruff in many ways an abrupt man, but he had a high sense of his duty as an officer and a gentlemen – and he didn't let the destruction go on by mere passivity. It would do no good for an officer to post an order that no deer must be killed: he must actually enforce it. The Utah and

Sequoia Park

childish character of the soldiers is shown by the incident of the messengers that were sent to Capt. West at the Colony Mill and who, although in sight of his camp-fire, returned through fright to the Three Rivers camp and reported that they had run up against a solid stone wall and could not go further.

— Mr. Davis says bears attack hornets nests and eat the young or rather grubs. They are "bad off" for nic-nacs; the hornets creep down the hair of the bears and sting them but they dont seem to mind.

— Bears eat manzanita berries.

January 4, 1902

— Fremontia, 2 ft. 1 1/4 in. circ. at 13 in. ↑ californica

— Aneicus, wood spm. no. ,, unusual, tree, 20 ft. high, slender with trunk for 1/2 its height; tough wood

— Mountain Misery = "Bear Clover"

— Fremontia, drops its leaves at end of dry season decidedly, the remainder with the first rains "set" for the winter.

— The hardest tree to blast out is the Yellow Pine. It has a monstrous tap-root with many lateral roots. Next comes Black Oak, then Cedar, Sugar Pine and Fir — Mr. Lou Davis, Giant Forest Road.

— Bears are fond of Coffee-Berry berries; so are foxes (Lou Davis); species often called Bear-berry.

Sequoia Park

– Workmen on the road into Round Meadow recognize two kinds of ceader – one has a white trunk and the other a red trunk – but Taylor found out that they could not always guess right; in other words that they could not positively determine by external differences. Taylor is the postmaster at Kaweah and was foreman on the road.

– "Deer Brush" – also called "Yellow Mahogany" by H. Redstone.

– Quercus Wislizenii – tree near Halstead's Ranch – 75 ft. high

Jan. 4, 1902

– Ceanothus species: (Revised Note)

1. C. cuneatus – Blue Brush.
2. C. (spinosus or incanus) – white trunk.
3. C. integrimus – Deer Brush
4. C. ———. First saddle near Colony Mill. Resembles No. 2.
5. C. ——— : blue flo. near Marble Fork bridge.
6. C. ———. Buckbrush, on hill to Round Mdw from Marble Fork.

Nos. 2, 4, 6 look almost like altitudinal variations of the same thing. Nos. 1, 3, & 5 are very distinct from these and one another. No. 3 has very few leaves now, just a few scattered over the branches but is distinctly evergreen. No. 4. is heavily foliaged. No. 5 is medium. No. 6 is like No 4 acc. to Hopkins. Nos. 1 & 2 are both foliaged.

Sequoia Park

- Just below Colony Mill there are 25 or 50 acres of mt. side covered with a uniform growth of Black Oak (Q. Californica) - trees sapling-like, 20 ft. high.
- The scrub oaks below this cover the mt. side in the same way, uniform height (3½ or 4 ft.) (Breweri or undulata) with Maul Oak trees on the edges. This Maul Oak is well called Canon Oak, clinging to the canon walls, not small trees but large ones; this species reaches right up to the yellow pine and then stops being replaced by the Kellogg Oak. On very hillsides too, ~~not~~ far below ~~Cedar~~ Maple Canon the Buckeye is scattered all

Jan. 4, 1902.

through the chapparal and the bushes look like skeletons. Further down we have a dumosa community on the mountain side north slope by Burdick's
- Maple shoots from old stumps have trunks 3 or 4 in. diam. and glaucous - so fast have they grown. Similarly Buckeye shoots were dark-brown and not white or even pale.
- Buckeye leaves here fall in middle July. "Early ripe, early rotten" says Mr. Burdick.
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Sequoia Park

Some of the expressions at Burdick's - hand as big as the hand of Providence". "Now he'll have to ride to keep on top of him" "I want a cup when I travel; I despise to get down on my belly and eat like a cow".

- Wislizenii wood fine to burn; "holds its heat well" - stumps hard to get out, won't rot, yet the wood is worthless - rots in the ground or on top of it.

- Maple, Large-leaf, especially second growth, makes fine single-trees. - Hopping. = Acer macrophy.

- We travelled 30 miles today, perhaps 35 - up to the Marble Park Bridge from Burdick

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and return - how we hiked it down - racing against the dark - hard trail at the last end - I with a sack of cones on my back - and the kyaks of Mr. Davis' mule loaded with my wood-specimens - stove-wood as the Ranger ~~facetiately~~ calls them.

- Umbellularia Californica is called "Bay Laurel" in this region. Perhaps this is the best combination of common name we can get. Distilled this makes an oil, which Mr. Davis says is a specific for catarrah, merely applied by holding to the noise and rubbing below the eyes.

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- Clematis lasiantha - heads of fruits still on bushes - Maple Cañon.
- Kellogg Oak - clean of leaves and acorns at this time - doubtless so for some time past.
- Mr. Burdick says Squaw Bush poisons him between the fingers. Perhaps unwittingly he has also handled Poison Oak, which often does not manifest itself for two or three days.
- Ceanothus (Spinosus*) Mr. Burdick says this blooms and is always caught by the storm & killed. ↑ flower. It is his weather sign.

* not C. spinosus! = C. divaricatus.

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- Mr. A. B. Burdick, Kaweah, California (East Branch)
- Sambucus glauca Circ. 3 ft 8 in & 4 ft - 2 trees 18 ft. high at Davis' Ranch
- Cercocarpus near Braddocks 20 ft. high. C. parvifolius.
- Sequoia giganteа - dead top - in Giant Forest - caught fire - struck by lightning - burned in top - and sent out sparks into the neighboring forest and started 2 or 3 fires.
- Al. Redstone says Buckeye posts put in green last longer than seasoned ones.
- Taylor, the Kaweah Postmaster, says there is Hemlock near Long Mdw and he "knows Hemlock".

Redstone Park

- The smooth willow here is yellow-twigged; the rough-bark willow is reddish-twigged; one can distinguish the saplings 10 or 20 ft. high - the larger roughish trunks of the rough-bark show reddish.

- Live Oak (Quercus Wislizenii) acorns - two years to develop - at this time the young acorns are no larger than they were in the spring - some people speak of them as being blasted acorns - but one can detect them by cutting the acorns and showing that they are green.

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- Asclepias eriocarpa Benth. See spm. no. 563., between Three Rivers and Lemm Cove. The bast fibres used by the natives for making ropes, strings for bows, broad strap-like "No-end" bands for carrying over the heads the baskets on the backs of the squaws.

- Abies nobilis Douglasiana - wood spm. from Kaweah - wood very tough - used to elegant for single trees, tongues, etc but the borers get at it very promptly and riddle it - a small borer it is, says Mr. Hopping. The fruits of last year are hanging still in some cases as well as those of this year.

Redstone Park

- Rhamnus crocea ilicifolia - called "Red Berry" by Mrnt. Barlin; used by the Indians for making bows; they also used cedar (Libocedrus) which will spring but not bend; their bows of Juniper Cedar when unstrung always sang back straight. Note "holly" leaves.
- Douglas Oak - adult tree - branches rough-barked clear to summit from base of trunk. Black oak smooth barked and trunk until the trunk gets old. Branches very black.

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- "Grant Oak" 1/2 mile east of Farmerville, 26 ft at 4 1/2 ft, 36 ft. at ground, limbs 28 ft.
- Tree 300 yds east 14 1/2 ft at 4 ft; 100 ft. high = valley oak. (Quercus lobata)
- Felled tree 6 ft 6 in diameter, not far from Grant Oak; heart sound, oblong rotten spots in sap, very near periphery
- Valley Oak - 70 cords of stovewood

Redstone Park

- Horses that feed on poison oak if driven until they becom warm tremble and shake; will die if not taken off the roads. Driven cattle similarly affected
- Soda Canons, zones of Pinus monticola and Foxtail Pine.
- Granite flow near Whitney - patch of Pinus albicaulis near it.
- Foxtail Pines near Alta Peak in quantity.
- Pinus flexilis near Monache acc. Hopping.
- Young trees of Sequoia gigantea in summit of Sequoia stump, 2 trees 12+ & ft. high.

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- Barton's young oak tree; "came up" in 1881; is now 40 or 45 ft. high with trunk 3 ft. in circumference at 3 ft. from ground. = Quercus lobata.
- Pentstemon breviflorus - bushy species collected in Kaweah River, see no. 567A of 1900 collection: habit can now be described: send up long vegetative shoots each season, wand-like affairs with inflorescence on top; these arise from the woody portion of the bush; at end of season these bend down and add to the thick tangle of old stems below - a mass 2 to 3 ft. high. See vol. 3, p. 144.

– W. H. Loudermilk & Co., 1424 F st. Washington, DC. For Government Publications

– California Indians or Indians of Early Calif: Governmental Publication.

– Fullers Forestry: Orange Judd Co., New York.

– Dept of Agriculture Bulletin on Beekeeping by Frank Benton (L. O. Howard, Chief of Div. of Entomology.)